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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
KWON, BRIAN YONG S	
ART UNIT	PAPER NUMBER
1614	

DATE MAILED: 04/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/085,000	FRANTSITS, WERNER JOSEF	
	Examiner	Art Unit	
	Brian S. Kwon	1614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *May 07, 2004 and July 09, 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/460769.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Application

1. Acknowledgment is made of applicant's filing of the instant application as a continuation of copending application Serial No. 09/460,769.

Claim Objections

2. Claim 16 is objected to because of the following informalities: Typographical error "alpha-tocopheral" is present. Appropriate correction is required.

Claim Objections

3. Claim 15 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. As being a dependent claim of the claim 14, the polyoxyethylene-660-hydroxystearate concentration in the claim 15 should further limit the polyoxyethylene-660-hydroxystearate concentration in the claim 14. However, both the concentration of polyoxyethylene-660-hydroxysterate in the claims 14 and 15 are the same. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Dependent claim 17 that depends on the dependent claim 16 recites that ascorbyl palmitate is not present in said composition. As being a dependent claim of claim 16, composition of the claim 17 must contain ascorbyl palmitate, however, the claim 17 claims that there is no ascorbyl palmitate present in said composition. Such inconsistency leaves the reader in doubt as to the meaning of the invention to which they refer, thereby rendering the definition of the subject-matter of said claims unclear.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kolter et al. (US 5891907) in view of Caloianu et al. (RO 113211) and End et al. (US 5453447).

The claims read on a process of preparing an aqueous formulation comprising 0.1-10% betacarotene, 10-40% polyoxyethylene-660-hydroxystearate, 5-20% isopropyl myristate and at least one of ascorby malmitate and alpha-tocopherol. Further limitations include 15-20% (w/v)

of polyoxyethylene-660-hydroxystearate in claim 3; 1-5% (w/v) beta-carotene in claim 5; 5-10% (w/v) of isopropyl myristate in claim 7; 0.01-1.0% (w/v), more specifically 0.02-0.3% (w/v), of the antioxidant in claims 8-9; 0.005-0.15% (w/v), more specifically 0.01-0.15%, of each ascorbyl palmitate and alpha-tocopherol in claims 10-11; and 5mg/ml of benzyl alcohol as the additional ingredient in the composition in claims 12-13.

Kolter teaches a stable aqueous formulation of beta-carotene in 0.1-10% (w/v), comprising polyoxyethylene-12-hydroxystearate with 10 to 40 oxyethylene units (Solutol H15), which is the same as polyoxyehtylen-660-hydroxystearate or polyoxyethylene-660-12-hydroxystearate, in 1-40% (w/v), more preferably 5 to 25%, and in 0.1-20% (w/v) lipophilic vitamins including tocopherol and/or ascorbic acid. See abstract; Examples; Claims 1-9. Kolter also teaches a process of making stable aqueous solubilizates, which comprises briefly heating the non-ionic emulsifier (e.g., Solutol HS 15) with the lipophilic vitamin or vitamin derivatives at above 120°C. Then while stirring, beta-carotene is introduced, the heating is removed and a solution of antioxidants in water for injections at about 20°C is added to the desired final concentration of 0.1-10% stable aqueous beta-carotene formulation (See Example 1).

Caloianu and End are supplied as references to demonstrate a routine knowledge in utilizing isopropyl myristate and benzyl alcohol as secondary agents in formulation betacarotene formulation.

Caloianu teaches the use of 2-5% isopropyl myristate and 0.01-0.1% vitamin E in 0.01-0.05% beta-carotene containing composition.

End teaches process of making 0.5-6% beta-carotene formulation by briefly heating beta-carotene together with an nonionic emulsifer (e.g., ethoxylated monhydroxystearic acid with 15

oxyethylene units) to give a homogeneous solution at above 120°C with or without the addition of 0.1-10% of antioxidants (e.g., DL-alpha-tocopherol), rapidly cooling it to below 100°C by adding water, and subsequently adjusting to the desired final concentration of beta-carotene with the addition of benzyl alcohol as a preservative at between 10° and 80°C (column 2, lines 11-48).

Kolter's teaching differs from the claimed invention in 1) the use of isopropyl myristate as an additional mediator of solubility; 2) benzyl alcohol as a preservative; and 3) the specific concentration of secondary ingredients in the formulation (e.g., isopropyl myristate, ascorbyl palmitate and alpha-tocopherol). To incorporate such teaching into the teaching of Kolter, would have been obvious in view of Caloianu who teaches the use of isopropyl myristate as an emulsifer of beta-carotene and End who teaches the use of benzyl alcohol as a preservative for beta-carotene formulation.

The above references in combination make clear that the process of making the aqueous formulation of the claimed range of beta-carotene (0.1-10%) containing 10-40% polyoxyethylene-660-hydroxystearate, 0.1 to 20% tocopherol and/or ascorbic acid or ascorbate is old and well known. The above references also make clear that the use of isopropyl myristate, ascorbyl palmitate, DL-alpha-tocopherol and benzyl alcohol as secondary agents in the aqueous beta-carotene formulation is old and well. The mere addition such secondary agents to the beta-carotene formulation is well considered within the skill of the artisan, absent evidence showing the unexpected results. In addition, optimization of amounts of known active and inactive ingredients in a composition is well considered within the skill of the artisan, and the artisan would be motivated to determine optimum amounts to get maximum effect of the drug.

One skilled in the art would have been motivated to combine the teaching of above reference such that the enhanced, stable beta-carotene formulation could be prepared.

6. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kolter et al. (US 5891907) in view of Caloianu et al. (RO 113211) and End et al. (US 5453447) as applied to claims 1-15, above, and further in view of Schweikert et al. (US 5924684). See rejection of claims 1-15 above.

The modified teaching of Kolter et al. includes all that is recited in claims 16 and 17 except preparing said composition in absence of alpha-tocopherol (claim 160 and in absence of ascorbyl palmitate (claim 17), respectively.

Schweikert is supplied as a reference to demonstrate a routine knowledge in utilizing antioxidants such as tocopherol and ascrobyl palmitate as secondary agents in preparing bea-carotene formulation (column 4, lines 20-25).

The above references in combination make clear that the process of making the aqueous formulation of the claimed range of beta-carotene (0.1-10%) containing 10-40% polyoxyethylene-660-hydroxystearate, 0.1 to 20% tocopherol and/or ascorbic acid or ascorbate is old and well known. The above references also make clear that the use of ascorbyl palmitate and/or DL-alpha-tocopherol as secondary agents in the aqueous beta-carotene formulation is old and well. The mere addition or subtraction of known secondary agents to the beta-carotene formulation is well considered within the skill of the artisan, absent evidence showing the unexpected results.

One skilled in the art would have been motivated to combine the teaching of above reference such that the enhanced, stable beta-carotene formulation could be prepared.

Response to Arguments

7. Applicant's arguments filed May 07, 2004 and Declaration filed July 09, 2004 have been fully considered but they are not persuasive.

The argument in response takes the position that KOLTER teaches away from the claimed invention. Applicant alleges that KOLTER is not able to produce a stable formulation of beta-carotene with only using Solutol HS 15 and water, or by using Solutol HS 15 in a small quantity of tocopherol (1.2%) without using additional ascorbic acid.

This argument is not found persuasive. Unlike the applicant's argument, KOLTER discloses beta-carotene formulations containing various amounts of tocopherols, from 0.1 to 20% by weight, as the specific embodiments, in the range of 1.05 to 10% tocopherol in Examples 1-8. Particularly, Formulation C in Example 7 that has been prepared with 10% of tocopherol is disclosed as 'clear, stable solubilizate' as well as the beta-carotene formulation in Examples 5 and 8. In light of the sufficient guidance provided in KOLTER, the Examiner believes that the skilled artisan would have been able to determine appropriate amounts of tocopherol and/or ascorbic acid to arrive at the claimed invention.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge

generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, one having ordinary skilled in the art would have been motivated to incorporate known secondary ingredients such as isopropyl myristate as an emulsifer of beta-carotene and benzyl alcohol as a preservative for beta-carotene formulation such that enhanced, stable beta-carotene formulation could be prepared. One would have been motivated to combine these references and make the modification because they are drawn to same technical fields (constituted with same ingredients and share common utilities), and pertinent to the problem which applicant concerns about. MPEP 2141.01(a).

Conclusion

8. No Claim is allowed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Kwon whose telephone number is (571) 272-0581. The examiner can normally be reached Tuesday through Friday from 9:00 am to 7:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Low, can be reached on (571) 272-0951. The fax number for this Group is (703) 872-9306.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1600.

Brian Kwon
Patent Examiner
AU 1614